HOUSING RESEARCH

Research Insight

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# Sustainable Mortgage Bonds – Expected performance, investors' motivations and econometric analysis

## Introduction

### Current challenges

CMHC has the aspirational goal of ensuring every household in Canada has a home that they can afford and that meets their needs. To achieve this goal, CMHC works with other participants, such as housing proponents (e.g., provincial and municipal governments, housing associations), developers and investors to meet two main challenges facing the housing industry in Canada:

- **A funding gap for affordable housing**. Some studies estimate a gap ranging from $77 billion to $120 billion,[1] representing more than 3 million units per year starting in 2016 for the next decade. This gap is strongly influenced by the need for resources to: replace or renovate the existing social housing stock, assist Canadians in core housing need, minimize waiting lists, and increase the supply of social and affordable housing. Furthermore, COVID-19 makes housing even more challenging, particularly for those most vulnerable and households with the lowest level of income.
- **The impact of the housing sector on climate change**. Among all sectors in Canada, the residential sector consumes the most energy (23.8%) and contributes significantly to greenhouse gas (GHG) emissions (18.8%).[2] This includes building, retrofitting and renovating, as well as consumption by dwellers. As the effects of climate change become more disruptive, the effect of the housing sector on the environment will inevitably become more relevant.

### CMHC research project

To address these challenges, CMHC undertook a study of sustainable mortgage bonds (SMBs) and their potential implications for the housing industry in Canada. Our objectives were as follows: explain the opportunities presented by SMBs; raise awareness of their positive environmental, social and economic impacts; and explore the potential role of government in bringing about these positive outcomes.

CMHC conducted internal research and commissioned the services of a global professional services firm. The firm conducted literature reviews, econometric analysis and a series of consultations with key industry players.

1 HPC Housing Investment Corporation. "*HPC Housing Investment Corporation: Background.*" https://www.housinginvestment.ca/background

2 Statistics Canada, "*Canadian System of Environmental-Economic Accounts*", September 2019.

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## About CMHC Research Insights

Research insights are summaries of our research reports.

These insights:

- identify a housing research issue, gap or need
- provide an overview of the research project undertaken to address it
- present major findings of the research

The research presented in this series explore the areas of Housing Need, Housing Finance, Housing Supply and Outcomes of the National Housing Strategy.

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## Reporting on this project

This second research insight discusses the potential performance of sustainable mortgage bonds in Canada. It covers:

- the financial performance that SMBs could have in Canada;
- the potential environmental, social and economic impacts of SMBs; and
- investors' up-to-date views and preferences with respect to outcomes, reporting, principles and other considerations for market growth.

**Articles in this series:**

- Sustainable Mortgage Bonds – Why are they so relevant to the housing industry in Canada?
- **Sustainable Mortgage Bonds – Expected performance, investors' motivations and econometric analysis.**
- Sustainable criteria for residential projects and role of government.

# Success factors for SMBs

While nascent, the ESG (environmental, social, governance) bond market is continuously growing in Canada, a trend that is mainly attributed to increasing domestic investor demand for ESG bonds. The success of SMBs in Canada will depend on the ability of issuers, developers, and housing proponents to understand investors' motivations and expectations:

- Developers and housing proponents should have investors' social and green outcomes top of mind when delivering housing projects;
- Issuers would need to set up robust and transparent ESG frameworks to facilitate investors' oversight, analysis and confidence; and,
- Investors would need to become more familiar with ESG investments and their expected social, green and risk-return outcomes.

It is thus relevant to study whether SMBs could enable affordable housing outcomes while generating positive returns for investors.

# ESG bond performance

ESG bonds can produce various financial and social returns. To assess their performance, it is relevant to highlight the financial and non-financial drivers surrounding these securities:

- Financial drivers include spreads, yields, volumes, cash flows, and cost of capital.
- Non-financial drivers refer to relational wealth (e.g., intangible assets related to reputation, client relationships and philanthropy) and factors reducing information asymmetry, such as transparent reporting processes.

The intangible benefits of ESG bonds in Canada are hard to quantify, given the data limitations on the realization of these benefits. For this reason, our research initially focused on a literature[3] review including various ESG bond and investment markets. Our findings indicate that:

- ESG bonds (and SMBs, by association) do not necessarily entail a financial trade-off relative to other conventional bonds; and,
- ESG investments tend to outperform non-ESG investments during economic downturns (e.g., the COVID-19-induced economic crisis in Q1 2020, or the energy downturn in 2015-16.

For example, a global investment manager with extensive experience in sustainable investment portfolios conducted a study of ESG investment performance[4] at the beginning of the global pandemic (January 1 to April 30, 2020). This study shows that:

- 94% of sustainable indexes outperformed their parent benchmarks;
- 88% of sustainable funds outperformed their non-sustainable counterparts; and,
- similar patterns ranging from 75% to 78% (ESB bond indexes outperforming non-ESGs) were identified during other economic downturns.

Other sources[5] indicate additional benefits from investing in ESG bonds, such as risk diversification and better risk adjustment returns than traditional government portfolios.

# Investors' motivations and considerations

We conducted a series of consultations with a selected group of investors, such as global asset managers, Canadian financial institutions, government organizations, foreign sovereign wealth funds, and social housing bond issuers, to gather industry insights and views about the performance and potential benefits of the ESG bond market in Canada.

Our consultations show that one of the potential benefits of ESG investments observed in our literature review—improved risk adjustment returns—do not perfectly align with the preliminary views and expectations of some Canadian investors in SMBs.

We find that SMB investors share similar motivations as those actively buying NHA MBS and CMBs,[6] that is, they are mainly looking for:

- low-risk and liquid investments;
- investments that are guaranteed by government (timely payments of principal and interest); and,
- quality residential mortgage assets.

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[3] Robert Eccles and Svetlana Klimenko, "*The Investor Revolution*", Harvard Business Review, May 2019; Robert Eccles et al., The Impact of Corporate Sustainability on Organizational Processes and Performance, 2014; Mozaffar Khan *et al*., Corporate Sustainability: First Evidence on Materiality, 2016; Jon Hale, Sustainable Investing Research Suggests No Performance Penalty, 2016; BlackRock Investment Institute, Sustainable Investing: A 'Why Not' Moment, 2018; BlackRock, Sustainability: The Bond that Endures, 2019.

[4] BlackRock, as of May 11, 2020. https://www.blackrock.com/corporate/literature/investor-education/sustainable-investing-resilience.pdf

[5] Mehmet Balcilar, *et al*, Do Sustainable Stocks Offer Diversification Benefits for Conventional Portfolios? An Empirical Analysis of Risk Spillovers and Dynamic Correlations, Sustainability MDPI Open Access Journal Vol 9(10), 2017.

[6] For NHA MBS and CMB definitions please refer to CMHC previous series: "*Sustainable Mortgage Bonds – Why are they so relevant to the housing industry in Canada?*"

However, there are two key distinctive factors driving SMB investors:

- The outcomes that green and social residential assets can produce for the community and environment; and,
- The achievement of Sustainable Development Goals (SDGs) targeted by investment portfolios.

Based on our literature review and consultations, the following factors can be taken into consideration by issuers and housing proponents when entering the ESG market:

- **It is still too early to opine on whether ESG bonds could outperform their non-ESG counterparts in the long term.**
  - Investors believe that ESG bonds' outperformance seen in other countries could be attributed to a demand and supply imbalance, meaning that there are not as many ESG investment options as investors would like to include in their portfolio mix. This implies that, as more ESG bonds become available, the excess returns could normalize as the market matures and trading volumes become mainstream.
  - Investors believe similar considerations would apply to SMBs. To achieve meaningful sustainable outcomes, the ESG market needs to increase in size and number of participants, placing relevance on the likelihood of government to step in to accelerate growth. Government intervention can thus be used to influence investors' expectations and enhance ESG bonds' performance.
- **At the moment, investors do not have a strong preference for either green, social or sustainable bonds (all else being equal).**
  - Investors have initially focused on the green bond market, with this trend seen to be more pronounced in Canada. Market demand for green products seems to be outstripping supply and therefore influencing issuers', developers' and housing proponents' preferences for increasing the supply of green issuances.
  - However, there is a recent and broader trend toward social and sustainable bonds that could be partially attributed to the emergence of the United Nations SDGs,[7] and more recently, the impact of COVID-19 on groups that are vulnerable.
- **Uniform and standardized ESG principles and transparent processes regarding labelling and ESG frameworks are crucial for facilitating information transparency and industry adoption.**
  - Given that the ESG market is nascent in Canada, investors generally rely on international guidelines or second-party opinions to support their investment decisions. Second-party confirmations or attestations[8] have become common and are used by investors to ensure the compliance of ESG frameworks.
  - There are two potential risks for investors when assessing performance and investing in ESG bonds:
    - Receiving inaccurate information about the use of proceeds and outcomes of ESG bonds, which can lead to practices of unduly attributing or magnifying the impacts. In the environmental arena, this is known as "greenwashing." This risk was not raised as a key concern during our consultations, likely due to the increasing role of ESG rating firms.
    - Receiving diverging opinions from different ESG ratings,[9] given the lack of uniformity in criteria, definitions, methodologies and underlying data.
  - Governments can mitigate both risks (to some extent) by establishing generally recognized methodologies and standardized definitions, facilitating a data sharing process (i.e. an ESG data hub) and requiring more transparency from rating firms in disclosing methodologies and assessments.

[7] United Nations, Sustainable Development Goals, accessed May 1, 2020: https://sustainabledevelopment.un.org/?menu=1300

[8] Also known as second-party opinions (SPOs), which are meant to provide an assessment of the issuer's framework by evaluating the green or social characteristics of eligible assets. For example, Fannie Mae and NWB Bank have engaged CICERO and Sustainalytics, respectively, for their SPOs.

[9] Aggregate Confusion: The Divergence of ESG Ratings, Florian Berg, Julian F. Kölbel, Roberto Rigobon, May 17, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438533

- **For the ESG market to succeed in Canada, it would be necessary to ensure timely, clear, consistent and transparent reporting of ESG outcomes.**
  - Investors expect that the allocation of proceeds to eligible projects/asset categories and ESG criteria be prepared based on recognized principles and guidelines (see Sustainable Mortgage Bonds – Why are they so relevant to the housing industry in Canada?).
- **Investment decisions regarding SMBs could be guided by concrete environmental and social criteria related to the housing sector, consistent with investment portfolios' goals.**
  - Key considerations for social impact investors could be for SMBs to pursue affordable/social housing, accessibility, and positive impacts on health, groups that are vulnerable, communities and infrastructure.
  - A wide range of environmental factors could be attractive for green investors, such as energy savings, reduction in GHG emissions, reduction in water consumption, reduction in pollution and deforestation.
  - A distinctive factor that could make SMBs stand out is that green buildings could carry less default risk.[10] This possibility is mainly attributed to better loan terms or performance resulting from environmental improvements or achievements.

# SMB expected performance —econometric analysis

ESG bonds have been observed to generate positive social and green outcomes in other jurisdictions,[11] and our consultations show there is an interest from the investor community. Given their scope, ESG bonds issued to finance housing in Canada are expected to have impacts on an array of outcomes such as lower fuel consumption, energy savings, a higher number of affordable units and more affordable rents. Linking these outcomes to ESG bonds is very challenging, due to factors such as data availability constraints, the varying timing of the expected impacts (short- and long-term) and cross-sector impacts other than those related to housing. As such, the approach was to check, compare and assess all available information to determine whether similar patterns can be highlighted.[12]

To fully understand the potential links of ESG bonds to the housing market, we applied two methodologies using various sets of assumptions: regressions and event study analysis.[13] A Canadian ESG bond index was developed using 49 different bond issuances to run regressions and link economic and housing-related indicators. To corroborate model outcomes, the consultant applied event study analysis.

The Canadian ESG bond market share over the last six years was also calculated to contextualize the analysis and identify the timing of material shifts in ESG bond volume (see table and chart below).

## Table 1: Overview of Non-ESG bond and ESG bond issuance in Canada

| Year | Non-ESG Bond Issuance | ESG Bond Issuance | Total Bond Issuance | ESG Bond Market Share |
|---|---|---|---|---|
| **2014** | $125,710 | $1,009 | $126,719 | 0.8% |
| **2015** | $173,220 | $1,413 | $174,633 | 0.8% |
| **2016** | $181,130 | $2,550 | $183,680 | 1.4% |
| **2017** | $254,550 | $3,859 | $258,409 | 1.5% |
| **2018** | $283,200 | $7,413 | $290,613 | 2.6% |
| **2019** | $419,410 | $11,241 | $430,651 | 2.6% |

Source: Global consulting firm and Bloomberg.

[10] Xudong An and Gary Pivo, Green Buildings in Commercial Mortgage-Backed Securities: The Effects of LEED and Energy Star Certification on Default Risk and Loan Terms, 2017.

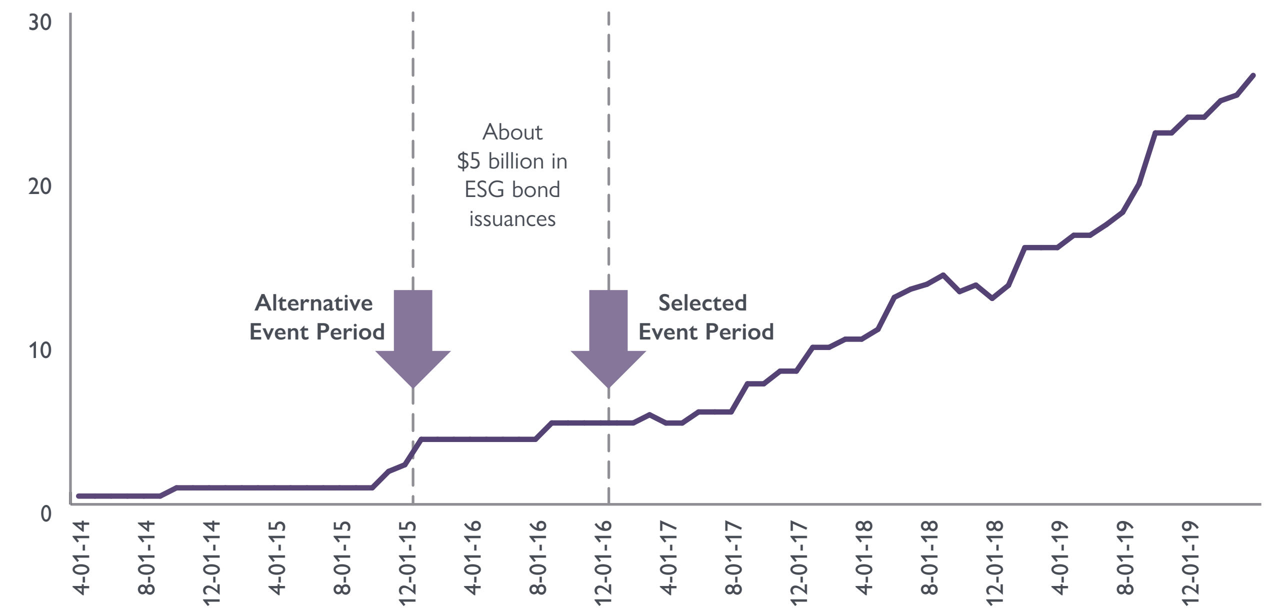
[11] CMHC: Sustainable Mortgage Bonds—Why are they so relevant to the housing industry in Canada?

[12] This section only presents the key aspects of the econometric analysis. The details will be presented in the full report to be published by mid-year of 2021.

[13] Event study analysis considers housing-variable changes after a material shift in the issuance volume of ESG bonds.

Figure 1 illustrates the trend in the total issuance of ESG bonds in Canada, where an event window could be identified after a material shift in ESG bond volumes. Visible changes can be observed after December of 2015 and of 2016. Thus, the event study used this window of time to perform the analysis and test the robustness of the model outcomes.

## Figure 1: Total outstanding issuance of selected ESG bonds (all values in billions of CAD)




Source: Global consulting firm that conducted the analysis.

The outcomes of the econometric analysis suggest that SMBs could lead to housing affordability and related green and economic benefits in Canada:

- **SMBs could be one factor that can enable affordable housing in Canada.** Indicators associated with affordability measures (i.e. rent payments, value of real estate to disposable income, mortgage debt to disposable income) improve as the ESG bond market grows or as ESG bond performance improves (e.g. better yields). SMBs could fund affordable housing projects with real estate values and rent levels below market values.
- **SMBs can help the housing sector transition to green energy sources.** Higher yields of ESG bonds are negatively related to the consumption of gas and fuel, implying that consumption drops as the performance of ESG bonds improves. This can also result in a decreasing reliance, by households on non-green energy sources, although other variables could also influence this relationship (e.g. carbon taxes).
- **SMBs can spur economic activity in the construction sector.** Positive economic activity could be expected when ESG bond issuances surpass a volume of $5 billion. The growth of SMBs could incentivize the supply of new residential or multi-unit housing projects or retrofit programs, leading to GDP gains in the construction sector.

While the event study analysis corroborated the regression analysis, the outputs are limited to a national-level view, given data availability constraints. This implies that the results could vary with more granular data (e.g. at the provincial or local level). Moreover, the ESG bonds in the dataset were not related exclusively to the housing sector and, as such, limitations will exist until the volume of ESG bonds related to the housing sector is sufficient to conduct a deeper analysis.

# Summary

Our work has demonstrated that SMBs can result in positive social, green and economic outcomes for the housing industry in Canada:

- There is interest from the investor community in generating green and social outcomes from their investment portfolios; however, it is too early yet to know if SMBs' performance will meet investors' risk-return targets. Time will tell as the ESG market grows and investors become more familiar with this type of security.
- Expected outcomes that SMBs can bring to the housing industry could be more supply of affordable housing, more affordable rents, and savings in energy and fuel consumption. The higher the volume of SMBs, the higher the impacts that could be linked to the housing sector.
- Standardized definitions, recognized methodologies, robust reporting process and data-sharing processes will play an important role in the growth of the industry and in building investors' confidence. These are areas where the government can step in to accelerate potential benefits.

While the growth of SMBs could help address the affordable housing gap and the climate change challenge, there are still several considerations that have to be resolved to generate a long-term success. As the ESG bond market matures, issuers need to find the right balance in the mix of social, green and sustainable bond issuances and the appropriate ESG criteria to incentive investors, developers and housing proponents to deliver a greater volume of affordable and green housing projects backed by transparent and clear reporting.

**In this article,** we looked at the expected performance of SMBs, the motivations that are driving investors in the ESG market and the results of our econometric analysis.

**In the next article,** we will focus on the insights and implications drawn from our research for Canada by building on the ESG criteria that issuers could consider and the potential role that government could have in supporting the growth of the SMB market.

# Further reading

**Sustainable Mortgage Bonds—Why are they so relevant to the housing industry in Canada?**

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